

Parental influence as a determinant of HPV vaccination behaviour among late adolescents and young adults; a qualitative study

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ABSTRACT

Background A relatively new target group was created for the Dutch Public Health Services when the Dutch Health Council advised to introduce a catch-up program for the HPV vaccination for both women and men up to 26 years old. Little is known about the role of parental influence on HPV vaccination behaviour in this group. This information may be of great significance for determining an approach for the HPV vaccination catch-up program.

Purpose The aim of this study is to examine the role of parental influence as a determinant of HPV vaccination behaviour in both women and men between the ages of 16 and 26 years.

Methods A qualitative research was conducted using in-depth interviews with 21 participants aged 16 to 26 years old who did not get the HPV vaccination. The interviews contained four questions focussing on parental influence. All interviews were transcribed verbatim and analysed thematically using MAXQDA.

Results Most parents had a positive attitude towards vaccination in general. Due to various reasons, many parents tended to have a more negative attitude towards HPV vaccination. Most female participants stated that their parents had a significant influence in their decision to refuse previous offerings of the HPV vaccine. Due to increasing autonomy in the target group, parents currently mostly have an advisory role.

Conclusion Many late adolescents and young adults seem to value to their parents opinion, however their influence seems to have little or no effect on the final decision to get the HPV vaccination. Our results show that addressing parents in the catch-up vaccination program in addition to the target group seems unnecessary.

Background

The human papillomavirus (HPV) is the most common viral sexually transmitted infection in the Netherlands, with a lifetime risk of acquiring a genital HPV infection estimated at 80%.^{1,2} Twelve genotypes of HPV are currently considered to be carcinogenic to humans, therefore being referred to as high-risk HPV (hrHPV).³ The majority of HPV-related cancer cases are caused by hrHPV genotypes 16 and 18, accounting for approximately 70% of all cervical cancers.⁴

In the Netherlands, approximately 650-900 women are annually diagnosed with cervical cancer.⁵ Although cervical cancer is the most prevalent cancer acquired by hrHPV, persistent hrHPV infection at other anatomic sites can also cause mucosal pathology, which can progress into cancer.⁶ Approximately 300-400, 60, 160, 200-300 and 1.600-1.800 individuals are annually diagnosed with vulvar, vaginal, penile, anal, and oropharyngeal cancer, respectively.⁷ HPV-associated cancers account for approximately 1000 deaths in the Netherlands each year.⁷

Since 2009 the HPV vaccination is offered to 12-year-old girls through the Dutch National Immunisation Program.⁸ Additionally, girls received an invitation for HPV-catch up vaccination between the ages of 14 and 17 years old.⁹ Since 1997, the HPV vaccination uptake varied between 45.5% and 61% for each vaccine-eligible cohort, making HPV vaccination coverage significantly lower compared to the other vaccinations offered in the National Immunisation Programme.^{10,11}

On June 19th 2019, the Dutch Health Council recommended to additionally start vaccinating boys against HPV and to lower the age at which children receive the HPV vaccination to 9 years of age. Furthermore, the Dutch Health Council advised to introduce a catch-up program for the HPV vaccination for both women and men up to 26 years old. This catch-up program would be focused on women who did not get the vaccine at a younger age and men who were previously not eligible for HPV vaccination.^{12,13}

No structural HPV catch-up vaccination program is currently available for late adolescents and young adults in the Netherlands. Consequently, men and women aged between 16 and 26 years old are a relatively new target group for the Dutch Public Health Services. The higher age in the target group is of great significance, as adolescents over 16 are allowed to make their own medical decisions without parental permission.^{14,15} Additionally, as of 16 years and older, more adolescents tend to be sexually active. Between the ages of 16-17, 18-20 and 21-24 year old, respectively 33%, 61% and 81% had sexual intercourse.¹⁶ An increase in sexual activity could contribute to an altered perceived risk to acquire an HPV infection and HPV-related cancer. Therefore, a different approach to reach this target group could be required.

Currently, little is known about which determinants are associated with HPV vaccination behaviour in late adolescents and young adults, including the role of parental influence. This information may be of great significance for determining an approach for the HPV vaccination catch-up program. Although several studies have explored determinants influencing HPV vaccination behaviour, most of these studies included participants different from our target group. Hence, the objective of this study was to examine the role of parental influence as a determinant of HPV vaccination behaviour in late adolescents and young adults.

Methods

Study design

This study is part of a larger study exploring all possible determinants influencing HPV vaccination behaviour in late adolescents and young adults. Due to a lack of international consensus on what ages constitute to young adulthood, young adulthood was defined as the ages 20-26 years. Late adolescence was defined as the ages 16-19 years.^{17,18}

A qualitative study was conducted using semi-structured in-depth interviews. For the larger study, an interview guide was used containing a total of 40 questions. Aforementioned interview guide was based on a framework derived from a previous qualitative study assessing determinants influencing acceptance of pertussis cocooning vaccination.^{19,20} Topics to discuss were: risk perception, attitude towards vaccination in general, attitude towards the HPV vaccination, sources of information, sexuality, parental influence, perceived autonomy and knowledge about HPV and the HPV vaccination.

The interview guide contained four questions focussing on parental influence. The present study solely focusses on the component of the study where participants were questioned about the influence of their parents on their decision to get the HPV vaccination.

Due to the non-invasive and anonymised nature of this study, no formal approval was required by the local Ethics Committee.

Selection of participants

Similar to the group eligible for the catch-up vaccination, men and women aged between 16-26 years old who were not vaccinated against HPV were eligible for inclusion. Additional exclusion criteria were: not being able to speak Dutch and not providing permission for the interview to be recorded. Participants were recruited through SoaAids.nl and sense.info; two Dutch websites focusing on sexual health.^{21,22} Additionally, an invitational message was placed on the Facebook page of the Public Health Services Utrecht. Furthermore, researchers were asked to recruit participants in their own local networks.

After opting for participation, participants received an invitational letter by email, which included information about the study and an informed consent form. Participants were asked to provide informed consent and to fill-in a questionnaire containing questions regarding sociodemographic information, including date of birth, sex, education, country of birth and religion. Additionally, the questionnaire contained several questions with regard to parental characteristics such as: education, country of birth, and religion. Answers given in the questionnaires were linked to a unique code. The aforementioned code was linked to all other personal data of the participant and only accessible to the main researchers. In case of overrepresentation in one of the sociodemographic factors, selection criteria for new participants were altered to ensure sufficient diversity in the study sample.

If the participant did not respond within 5 days after the first invitational email was sent, they received a reminder. If the participant did not respond to the reminder, they received a final email

requesting if they still wanted to participate in the study. If participants chose to opt out, they were requested to name their reason for not wanting to participate. After opting out, all data regarding the participant was erased. Nine participants were excluded from participation due to not responding to the invitational e-mail (n=6), not being able to speak Dutch (n=1), not wanting the interview to be recorded (n=1) and already being vaccinated against HPV (n=1).

Two days before the interview, participants were sent a leaflet containing basic information about HPV and HPV vaccination. This was done as it is known that Dutch late adolescents and young adults generally have a low level of knowledge about HPV and HPV vaccination, boys in particular.^{23,24} Previous research has shown that knowledge is not an important determinant in regard to vaccine behaviour.^{23,24,25} Therefore, providing this information leaflet helped to create a basic level of knowledge between the participants and helped to enrich discussion about the other determinants influencing vaccination behaviour. Secondly, it facilitated the discussion about HPV and the HPV vaccine.

Data collection

In-depth interviews were held to capture descriptive data about how participants think and behave. Prior to performing the interviews, each researcher participated in an interview training. Interviews were performed between June 1st 2020 and July 30th 2020 and lasted between 30-60 minutes. Initially, interviews were supposed to be performed at home or any other location preferred by the interviewee. However, in light of the COVID-19 pandemic and the subsequent social distancing rules, participants were given the option to participate in the interview through video calling thus lowering the participation threshold.

Most participants (85%) chose to be interviewed through video calling. Many participants were (very) positive about being interviewed through video calling. We did not experience a difference in the answers given by participants through video calling compared to face-to-face contact. To create a safe environment, both the interviewer and interviewee elaborately introduced themselves before starting the interview. Additionally, we specifically mentioned only to record the audio of the interview using an external audio recorder. Prior to starting the interviews, participants were assured that everything they said would be anonymous and confidential. Additionally, consent for recording of the interview and transcription by a third party was requested.

After finishing the interview, notes were made of any relevant observations made regarding the atmosphere during the interview, appearance and attitude of the interviewee, and presence of subjects that were not open for discussion.

New interviews were planned until no new concepts or themes emerged and theoretical saturation occurred. Data saturation was not yet reached at the time of writing this research article, as men and people with lower education were insufficiently included in the results. However, due to the exploratory nature of this study, reaching data saturation was not considered a main objective. In the main study, these groups will be included in the results.

Data analysis

Interviews were recorded using a digital voice-recorder and transcribed verbatim by an external transcription service. Each transcribed interview was anonymised and linked to the personal code.

Three researchers independently coded five transcribed interviews using coding and analysis software MAXQDA. Main themes were extracted using both an inductive and a deductive approach. All researchers discussed the codes and themes until consensus was reached. The remaining 16 interviews were coded solely by the main researcher based on the discussed coded themes. A total of 270 fragments of text were coded. All fragments were labeled using 14 unique codes, which were clustered in 8 categories and 5 overarching themes.

A members check was not yet conducted at time of writing this research article, although this will be conducted prior to publication.

Results

As shown in table 1 in the appendix, a total of 21 participants were included in this study. Our study sample was mostly composed of young adults (76.2%). The average age of the participants was 21.9 years (standard deviation (SD) = 2.8). No differences were found in the answers given by young adults and late adolescents.

Most of our participants were female (61.9%). There was no significant difference in the answers given by male and female participants regarding parental attitude towards vaccination in general, perceived autonomy and current parental influence. There were some differences found between male and female participants in regard to (knowledge of) current parental attitude towards the HPV vaccination.

During the interviews, many female participants expressed their experiences regarding the role parental influence had at previous offerings of the HPV vaccine as young adolescents. As inclusion of this information helps in understanding the changing role of parental influence in the target group, these answers were also included in the analysis.

Regarding parental characteristics, the majority was born in The Netherlands (78.5%) and had followed higher education (61.9%). The majority of parents is Christian (42.9%) or irreligious (42.9%). A more detailed description of parental characteristics can be found in table 2 in the appendix.

Current parental attitude towards vaccination in general

Firstly, participants were asked: 'What is the opinion of your parents on vaccination in general?' No differences were found in the answers given by female and male participants.

The attitude towards vaccination in general is known to most participants. A majority of participants indicated that their parents are in favour of vaccinating. Most participants also reported having received all childhood vaccinations (95.1%). However, many also noted that their parents

have a fairly critical view regarding vaccination in general. An important determinant contributing to vaccine acceptance was the feeling the vaccination was sufficiently tested. As for some parents research for the HPV vaccine was insufficient, some participants said that the HPV vaccination was the first vaccine their parents were critical of.

“If it is well-substantiated by science, she has no problem getting vaccinations. But she is always very sceptical. She wants to investigate things herself first.” - Participant 13, female, 21 years old

“In general they think it's okay, because I had all the standard vaccinations as a little child.” - Participant 6, female, 20 years old

Some parents have a more negative attitude towards vaccination, reasons given are: a sceptical attitude towards western medicine in general, thinking that children receive too many vaccinations, experiencing deterioration in health after vaccination and the idea that it is good for your immune system to experience certain diseases instead of injecting something into your body 'that doesn't belong there'.

“My parents have chosen not to have me get all the vaccinations as a baby, because they have the idea that you become stronger by experiencing certain diseases. They are very sceptical about putting something into your body that doesn't belong there.” - Participant 21, female, 21 years old

Parental influence as a determinant for previous HPV vaccine refusal

Many female participants expressed their experiences regarding the role of parental influence at previous offerings of the HPV vaccine. As men were previously not eligible for the HPV vaccination, the following answers were solely given by female participants.

Most female participants stated that their parents had a significant influence in their decision to refuse previous offerings of the HPV vaccine. More specifically, for many participants the motherly influence seems to have been the most influential determinant. Only for some, specifically the father's influence was decisive.

Several participants indicated they felt unable to make their own decision regarding the HPV vaccine when they were younger, thus entrusting their parents to make the decision for them. Some participants felt they did not have the opportunity to make their own choice, as their parents made the choice for them regardless of their personal opinion. One participant noted she initially experienced a great lack of information in regard to the HPV vaccine. Thus increasing her dependence on the information she received from her mother and making it harder to make an autonomous decision. Most participants indicated that they held their parents' ideas in high regard when they were younger.

“It's good that it's offered, but you can't really make that decision yourself when you're that age. So it's still a choice of your parents.” - Participant 3, female, 21 years old

“I was 12, so I didn't have much to say about whether or not I got a vaccination. My parents were responsible for that.” - Participant 19, female, 19 years old

Reasons for previous parental HPV vaccine refusal were quite diverse. Many parents refused the vaccine due to a fear of side effects; a fear that frequently arose from the idea that the vaccine was relatively new and thus was not sufficiently tested. Particularly chronic fatigue syndrome was mentioned several times as a side effect that was feared by parents. Additionally, fear of fever, autism, an increased risk of cancer and behavioural changes were also mentioned by some participants. Several participants mentioned yet undiscovered future side effects as a reason for parental HPV vaccine refusal, specifically side effects that would surface years or decades after initial vaccination. Fear of side effects resulted in some parents viewing Pap smears as a safer alternative.

“My father was especially against it. He was very afraid of the side effects the media were talking about so much. [...] Many said the vaccine caused autism or chronic fatigue syndrome.” - Participant 10, female, 21 years old

“I remember my mother saying that it was better to get a Pap smear every now and then, than to get injected with a new vaccine.” - Participant 3, female, 21 years old

For some parents, routes of transmission of HPV were not clear. Resulting in a lack of clarity as to why the vaccination had to be given before the sexarche (the age when a person first engages in sexual intercourse) and consequently a reduced perceived urgency for HPV vaccination.²⁶ Although many participants mentioned that they postponed choice to get the HPV vaccine as they had the option to get the catch-up vaccination, no participants reconsidered their choice at a later date.

“My mother thought that even if we didn’t get the vaccine now, we could always get it later.” - Participant 20, female, 25 years old

“My father thought; let’s see how it goes. You can always get the vaccine later. Of course, that didn’t happen.” - Participant 10, female, 21 years old

A few participants indicated that they had made their decision in consultation with their parents. However, as most had knowledge about their parents’ attitude towards vaccination in general or the HPV vaccine, many noted they were influenced in their decision as they took this knowledge into account. Only a few participants told us they made the decision to refuse the HPV vaccine without any parental influence.

“I made that decision myself and not necessarily in consultation with my parents. But of course, I knew how they generally thought about vaccination. [...] So they did have an influence, but more indirectly.” - Participant 18, female, 26 years old

Current parental attitude towards the HPV vaccination

Participants were asked: ‘What is the opinion of your parents on the HPV vaccination?’ Some differences were found in the answers given by female and male participants.

Current parental attitude regarding the HPV vaccination is unknown to many female participants, since the topic has not been discussed since the first offering of the vaccine. Some female participants indicated that their parents still have a negative attitude towards the HPV vaccination. General scepticism about the vaccine and fear of side effects were mentioned by many as reasons for a negative attitude.

“I looked at the site of the RIVM (National Institute for Public Health and the Environment) and it said there are no long-term or severe side effects to the HPV vaccination. But my mother told me yesterday that those side effects do exist. According to her, these stories have been covered up.” - Participant 21, female, 23 years old

Some parents seem to have changed their attitude towards the HPV vaccination. Several female participants whose parents now have a positive or neutral attitude, indicated they recently discussed the topic and had informed their parents about the vaccine's efficacy and the risk of side effects.

“Now she’s happy that I am going to get the vaccine. She also knows more about it too.” - Participant 13, female, 21 years old

“When he knew that it happened so often and how well the vaccine works, he was like: Then you're gonna have to get that. If that's what you want, that's what you have to do.” - Participant 10, female, 21 years old

For most male participants, current parental attitude towards the HPV vaccination is also unknown. Many indicated that the HPV vaccination is not a topic that they have ever discussed with their parents. Male participants who know their parents are positive about the HPV vaccination, had one or both parents working in health care.

“I do have a brother, but no sister. So he didn't have to get that vaccine either. That's why my parents never came into contact with the HPV vaccine.” - Participant 15, male, 19 years old

Current parental influence on HPV vaccine decision making

Another question asked was: ‘What is the influence of your parents on your decision to get the HPV vaccination?’ No differences were found in the answers given by female and male participants.

The majority of participants indicated that their parents have little to no influence on their decision to get vaccinated against HPV. For many participants, parents play a solely advisory role. Many participants solely spoke about their mother's current influence on their decision to get vaccinated against HPV. Fatherly influence was little or even absent to several participants. Several participants indicated they experienced a general decrease in parental influence as they grew older.

“I regard their opinion as something advisory. If they were to say something that wasn't in line with what I was thinking, I would probably think about it for a moment. But in the end I would still make my own decision.” - Participant 11, male, 25 years old

Several participants indicated that they value the quality of the arguments their parents give; these should be well-substantiated. Based on the arguments given, participants would decide whether or not they would reconsider their choice. The importance of reliable information, whether scientifically substantiated or not, is important for multiple participants in their decision to get vaccinated.

“It all depends on what arguments she brings up. But if I think there is a grain of truth in it, I would take it in consideration.” - Participant 8, female, 26 years old

Few participants still attach a lot of importance to their parents' opinion. However, these participants also indicated that the parental attitude is not completely decisive in their final decision

as they told they would still make their own decision despite a possibly different opinion of their parent. Some participants indicated that they only value the opinion of their parents in case of doubt about getting the vaccine.

“I make the definitive decision myself. I do attach great importance to the opinion of my mother and friends, but it’s not that they’re decisive in my choice. What really matters to me is science. So even if they would advise against it, I would still do it.” - Participant 13, female, 21 years old

“I always make my own decisions, but I would be influenced by my parents if they were against it. It would make me think again, but if I really wanted to get the vaccine I would just do it. I would think it’s a pity that I don’t have their support, but it wouldn’t stop me one.” - Participant 3, female, 21 years old

“I’m old and wise enough to make my own decision. But if I had any doubts, my mother would be one of the people I would listen to.” - Participant 20, female, 25 years old

Only a few participants told that they do not add any value to their parents’ opinion. Contrastingly, one participant indicated that his parents are still the most influential determinant in his choice to get the HPV vaccine. This participant stated that he valued his parent's opinion and that he was likely to follow their advice.

“Her opinion is extremely important to me. [...] If she said that the vaccination is good for me, I would take it.” - Participant 5, male, 17 years old

Current experienced autonomy in HPV vaccine related decision making

To get a better view on the experienced autonomy in HPV vaccine related decision making, participants were asked: ‘To what extent do you experience autonomy in your decision to get the HPV vaccination?’ There was no notable difference in the answers given by male and female participants. Furthermore, participants of all age groups experienced an equal degree of autonomy.

Almost all participants indicated they experienced complete freedom to make their own choice whether or not to get vaccinated against HPV. The majority indicated that their choice would ultimately be made entirely by themselves, without any significant external influences. Participants often noted that, as they were the one having to live with the consequences of their decision, they regarded the HPV vaccination as a highly personal choice.

“It is my personal choice, as I have to live with the consequences.” - Participant 4, female, 17 years old

“I don’t feel any external pressure to do anything other than what I would like to do.” - Participant 11, male, 25 years old

Some participants, however, experienced a diminished autonomy in their choice. Determinants that resulted in this decreased sense of autonomy were: an experienced peer pressure and an experienced influence by what other people think about the HPV vaccine.

“No, I can never say that I make that decision all by myself as I’m influenced by what other people think and feel.” - Participant 18, female, 26 years old

“I think I experience little space to really make my own choice here. [...] It just really affects me what other people do.” - Participant 16, female, 25 years old

Discussion

This qualitative study aimed to gain insights in the role of parental influence as a determinant of human papillomavirus (HPV) vaccination behaviour in both men and women between the ages of 16 and 26 years.

Our results show that most females experienced a significant influence of their parents in their decision to refuse previous offerings of the HPV vaccine when they were young adolescents. Reasons for initial vaccine refusal were diverse and align with results from previous studies, most importantly being: perception that the information provided by the government was limited or biased, lack of knowledge about the effectiveness of the vaccine, concerns about the side effects of the vaccine, lack of conviction that HPV can be harmful and the perception that the government is influenced by vaccine producers.^{2,27,28,29} Additionally, one study has shown that parents expected the vaccine to be tested for several years before vaccinating their own children, thus possibly suggesting that some parents do not expect vaccines to be thoroughly tested before inclusion in the National Immunisation Programme.²⁸

The target group currently experiences complete freedom to make their own choice to get vaccinated against HPV. Additionally, many regard getting the HPV vaccination as a highly personal choice. As most late adolescents and young adults noted a significant decrease in parental influence as they grew older, many indicated that their currently parents play a solely advisory role. Although many late adolescents and young adults seem to value to their parents opinion, their influence seems to have little or no effect on the final decision to get vaccinated. This is of great significance when creating a catch-up program for the HPV vaccine, as it is possibly not necessary to additionally address parents when approaching the target group.

Strengths and limitations

To our knowledge, this his is the first study exploring the role of parental influence in the decision to get the HPV vaccination, as seen from the perspective of the relatively new target group of 16-26 year-old men and women. This study also offers a unique insight in the influence parents had at the previous offerings of the HPV vaccination. Current research on adolescent attitudes regarding HPV vaccination separate from parental attitudes is very limited in scope, possibly reflecting the dominant role of parents in the decision to get vaccinated.³⁰

A limitation of this study was that at the time of writing this article, data saturation was not reached for men and participants with lower education. Therefore, our results need to be interpreted with more caution for young adults and late adolescents with lower education and men.

Conclusion

Many participants currently experience complete freedom to make their own choice to get vaccinated against HPV, regarding it a highly personal choice. As most participants noted a decrease in parental influence as they grew older, parents currently seem to full-fill a solely advisory role. This is of great significance when creating a catch-up program for the HPV vaccine, as it is possibly not necessary to additionally address parents when approaching the target group. Future research studies should specifically try to include male participants and participants with lower education to increase generalisability of results.

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Competing interests

None declared.

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Appendix

Table 1. Baseline characteristics of participants (n = 21)

Characteristics	N (%)
Sex	
Female	13 (61.9)
Male	8 (38.1)
Age	
16-19 (late adolescence)	5 (23.8)
20-26 (young adulthood)	16 (76.2)
Country of birth	
The Netherlands	19 (90.5)
Syria	1 (4.8)
USA	1 (4.8)
Level of education	
HAVO	1 (4.8)
MBO	3 (14.3)
HBO	3 (14.3)
WO	14 (66.7)
Religion	
Irreligious	12 (57.1)
Christianity	3 (14.3)
Islam	2 (9.5)
Agnostic	2 (9.5)
Other	2 (9.5)
Sexarche	
Virgin	4 (19.0)
15-16	4 (19.0)
17-18	8 (38.1)
19-20	2 (9.5)
21 or older	3 (14.3)
Vaccination status	
Complete	20 (95.2)
Partly	1 (4.8)
Intention to get the HPV-vaccination	
Yes	12 (57.1)
No	3 (14.3)
Undecided	2 (9.5)
Unknown	4 (19.0)

Table 2. Baseline characteristics of parents (n = 42)

Characteristics	N (%)
Country of birth	
The Netherlands	33 (78.5)
Morocco	1 (2.4)
India	2 (4.8)
Surinam	3 (7.1)
Syria	2 (4.8)
USA	1 (2.4)
Level of education	
Elementary school	2 (4.8)
Practical education	1 (2.4)
VMBO	3 (7.1)
HAVO	1 (2.4)
MBO	8 (19.0)
HBO	17 (40.5)
WO	9 (21.4)
Other	1 (2.4)
Religion	
Irreligious	18 (42.9)
Christianity	18 (42.9)
Islam	3 (7.1)
Hinduism	2 (4.8)
Agnostic	1 (2.4)